October 8, 1952

Dr. P. R. Edwards
Communicable Disease Center
Box 185, Chamblee, Ga.

Dear Dr. Edwards:

Thank you for the sera, which arrived today. They will be very helpful, but it is becoming increasingly evident that we can do only the preparatory phases of the serotype "breeding program" here, and I am indeed looking forward to working closer to your very helping hand.

Under separate cover, I am mailing a group of cultures coming out of our present work. The S. paratyphi B, O form, strain received from Kauffmann (his No. 248 gave results that were, at first, very confusing, but their genetic basis is rapidly being cleared up. I believed that we mentioned earlier that this strain might be showing some sort of cryptic phase variation from b—i. This is rather clearly not the case, and the i phases that were recovered fairly definitely stem from the S. typhimurium FA. To verify this, I have obtained FA preparations from a number of other serotypes, and am asking whether you would be kind enough to have them definitively typed, as our own resources have been limited to the products of your previous generosity. Some of the transductions represent new serotypic combinations (if my deductions are correct) and these may have some further interest beyond their value in clearing up the behavior of Kauffmann's # 248. All the cultures have been passed through single colonies once or twice.

The cultures fall into the following groups:

From #248, exposed to the indicated FA and selected in soft agar (no serum).

			flagellar type:
[SW-673	no FA (spontaneous reversion, occurs very rarely)		b--(monophasic?)
[SW-676	selected from SW-673 in b (+1,2?) serum. Is this a "j" phase?]		
SW-662	FA from S. dublin	anticipated gp	
SW-679	FA from S. enteritidid	"	gm
SW-675	FA from S. altendorf	"	c?? (j?)
SW-677	FA from S. abony reacts weakly with b	"	b—enx??
SW-678	alternate phase selected from SW-677 with B serum.		
SW-680]	FA from typhimurium	b—	
SW-681]	different isolates.	i—	

The following are from S. typhi H901 exposed to FA followed by d-serum-agar

		found	anticipated
SW-667	FA S. dublin	~~xxxx~~	gp
SW-668	FA S. san diego	e...	eh pr enx
SW-670	FA S. abony	b...	b—

The following are from S. typhimurium (biochemical mutant SW-435) exposed to FA followed by selection in i-1,2-serum agar

SW-672	FA S. abony	b	b—
SW-674	FA S. dublin		gp

I shall be very surprised indeed if the somatic antigens are appreciably altered from the bacterial parent (paratyphi B, typhi, and typhimurium resp.) Some of the phases I have not been able to type here at all may be "j" phases however. I thought that the b-serum I had here previously would do to select second phases from the b types, but it turned out to have sufficient 1,2-antibody to suppress this phase in agar (despite the non-reactivity in slide agglutination). We should have this remedied soon.

All of the non-b phases from #248 were accompanied by b's, which have not been sent, as they show no interesting features. It was the occurrence both of b phases and of phases presumably represented in the FA that was so difficult to understand, but I think there is a fairly simple explanation quite consistent with our earlier work that the typing of the present cultures will help to verify.

Yours sincerely,

Joshua Lederberg